CLAIMS

1. Target intended to emit neutrons when it is bombarded with particles, characterised in that it comprises neutron emissive parts (11) and neutron non-emissive parts (12) which are juxtaposed, said emissive and non-emissive parts forming a pattern of the type of that of a coded mask.

2. Target according to claim 1, characterised in that the emissive parts (11) are formed from at least one metal hydride, the metal (15) of the metal hydride being deposited on a support (14) in non-hydrogen fixing material through a stencil (16).

3. Target according to claim 1, characterised in that it comprises an extended neutron emissive zone (18) formed from at least one metal hydride, said extended zone (18) cooperating with a mask (19) in neutron non-emissive material, the non-emissive material of the mask (19) partially covering up the extended emissive zone vis-à-vis the particles and forming non-emissive parts (12).

4. Target according to claim 3, characterised in that the extended emissive zone (18) is supported by a support (14) in a non-hydrogen fixing material.

5. Target according to one of claims 2 or 4, characterised in that the non-hydrogen fixing material of the support (14) is chosen from among copper, silver or gold, said metals being used alone or in combination.

6. Target according to claim 1, characterised in that the metal of the metal hydride is chosen from among titanium, zirconium, erbium, scandium and vanadium.

7. Target according to claim 3, characterised in that the non-emissive material of the mask (19) is chosen from among molybdenum, steel, iron, copper, tungsten and tantalum, said metals being used alone or in combination.

8. Particle accelerator, characterised in that it comprises a target (65) according to claim 1.

9. Application of the particle accelerator according to claim 8 to radiography, in which the target (10) cooperates with the geometric deconvolution means (32) to decode an untreated image (30) given by the neutrons having crossed through an object (4) to be radiographied in a reconstructed image (31) of the object.

10. Particle accelerator according to claim 8, characterised in that it is equipped with an α particle detector (69) associated with the emission of neutrons.

11. Particle accelerator according to claim 10, characterised in that the α particle detector (69) comprises a plurality of pixels (76) arranged in a matrix.

12. Particle accelerator according to claim 10, characterised in that the target (65) is inclined in relation to the direction of the particles (64) that are bombarding it.

13. Particle accelerator according to claim 10, characterised in that the target (80) is substantially parallel to the α particle detector (58).

14. Application of the particle accelerator according to claim 10 to the analysis of substances and/or the imaging of substances that may be hidden, said accelerator cooperating with at least one γ radiation detector (50) and geometric deconvolution means (81) for a gamma pseudo-image obtained by coincidence of gamma events and α particles detected by the α particle detector.

15. Application of the particle accelerator according to claim 10 to the imaging of substances that may be hidden, the tube cooperating with a neutron detector.

16. Neutron generating tube, characterised in that it comprises a target (10) according to claim 1.

17. Application of the neutron generating tube according to claim 16 to radiography, in which the target (10) cooperates with the geometric deconvolution means (32) for decoding an untreated image (30) given by the neutrons having crossed through an object (4) to be radiographied in a reconstructed image (31) of the object.

18. Neutron generating tube according to claim 16, characterised in that it is equipped with an α particle detector (49) associated with the emission of neutrons.

19. Neutron generating tube according to claim 18, characterised in that the α particle detector (49) comprises a plurality of pixels (76) arranged in a matrix.

20. Neutron generating tube according to claim 18, characterised in that target (47) is inclined in relation to the direction of the particles (64) that are bombarding it.

21. Neutron generating tube according to claim 18, characterised in that the target (80) is substantially parallel to the α particle detector (58).

22. Application of the neutron generating tube according to claim 18 to the analysis of substances and/or the imaging of substances that may be hidden, the tube cooperating with at least one γ radiation detector (50) and geometric deconvolution means (81) for a gamma pseudo-image obtained by coincidence of gamma events and α particles detected by the α particle detector.

23. Application of the neutron generating tube according to claim 18 to the imaging of substances that may be hidden, the tube cooperating with a neutron detector.